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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/202,455 12/15/98 YAMAGUCHI K FJN-070

HM22/1107

TESTA HURWITZ & THIBEAULT
125 HIGH STREET
HIGH STREET TOWER
BOSTON MA 02110

EXAMINER

HAMUD, F

ART UNIT	PAPER NUMBER
----------	--------------

1647

13

DATE MAILED:

11/07/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

File copy

Office Action Summary

Application No.
09/202,455

Applicant(s)
Yamaguchi et al

Examiner
Fozia Hamud

Group Art Unit
1647



☒ Responsive to communication(s) filed on Aug 18, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 65-92 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 65-92 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☒ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

1. Claims 1-64 have been canceled and new claims 65-59 have been added in Paper No.12 filed on August 18, 2000. Thus claims 65-59 are under consideration by the Examiner.
2. Receipt of Applicant's arguments and amendments filed in Paper No.12, 08/18/00 is acknowledged.
3. The following previous objections and rejections are withdrawn in light of Applicants amendments filed in Paper No.12, 08/18/00:
 - (I) Objection to the disclosure for missing abstract.
 - (ii) Objection to the disclosure for not referencing the PCT Application.
 - (iii) Objection to the disclosure for reciting the word "novel" in the title.
 - (iv) All the outstanding rejections of claims 1-64 are withdrawn in view of the cancellation of claims 1-64.
4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Applicant's arguments filed in Paper No.12, 08/18/00, have been fully considered but were deemed persuasive in part. The issues remaining are restated below.
6. **Priority Dates:**
 - a) 09 7808/1997 filed on 04/15/97 discloses osteoclastogenesis inhibitory factor binding molecule (OBM) produced by mouse osteoblast stromal cell line ST2, therefore, only claims to OCIF binding molecule purified from natural resources would get this priority date.

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- b) 151434/1997 filed on 06/09/97 discloses mouse cDNA encoding OCIF binding molecule, and the full length mouse protein sequence. Claims drawn to mouse DNA and encoded protein get this priority date.
- c) 217897/1997 filed on 08/12/97 discloses fragments of the mouse OBM 72-316, 76-316.
- d) 224803/97 filed on 08/21/97 discloses human cDNA and encoded protein and fragments thereof. Claims to human DNA and encoded protein get this priority date.

Claim objections

7. Claim 73 and 77 are objected to because of the following informalities:

claim 73 is objected to, because it has a spelling error. In line 2, the word "domane" should be replaced by "domain".

Claim 77 is objected to as using improper/incomplete Markush language. (See M.P.E.P. 706.03(y).) Applicants should delete the use of "or" in line 3, with the last alternative embodiment and substitute "and" instead.

Claim Rejections - 35 USC § 112

8. Claims 65-76, 77-81 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an isolated mouse osteoclastogenesis inhibitory (OCIF) binding protein comprising the amino acid sequence set forth in SEQ ID NO:1 and an isolated human OCIF binding protein comprising the amino acid sequence set forth in SEQ ID NO:11, said polypeptide encoded by a polynucleotide comprising the nucleotide sequence set forth in SEQ ID NO:2 or SEQ ID NO:12 respectively, and a fragment of the polypeptide of SEQ ID NO:1 comprising amino acid residues 72-316 or 76-316, and a method of recombinantly making

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said polypeptides, is not enabling for "all" possible mouse or human purified osteoclastogenesis inhibitory (OCIF) binding proteins, or "all" soluble, membrane proteins, or secreted mouse or human purified OCIF binding proteins, or "all" human or mouse OCIF binding proteins that lack the transmembrane domain or that are fused to a heterologous protein sequence, or fragments, analogs or variants of said proteins that bind to OCIF or promote osteoclast differentiation and maturation. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Claim 64 recites "a purified and isolated OCIF binding protein...", what is claimed in claim 64 broadly encompasses "all" proteins that bind to OCIF, while the specification discloses that the mouse polypeptide comprising the amino acid sequence set forth in SEQ ID NO:1 and the human polypeptide comprising the amino acid sequence set forth in SEQ ID NO:11 are proteins produced recombinantly or produced and purified from osteoblastic stromal cells, that bind to labeled OCIF, comprise apparent molecular weight of 30,000 to 40,000 Daltons and promote osteoclast differentiation and maturation (see pages 53, 67 and 85, 108 and Figures 1, 2, and 26). The specification further discloses that the OCIF binding protein of the instant invention can be membrane bound or in a solubilized form. However, the specification is non-enabling for the unlimited number of proteins having OCIF binding property which are encompassed by the scope of the claims. Also the instant specification is non-enabling for all human and mouse proteins that exhibit activity promoting osteoclast differentiation and maturation as recited in claim 6.

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With respect to claims 70-71 which recite fragments of OCIF binding protein, the only fragments enabled by the instant specification are the fragments comprising amino acid residues 72-316 or 76-316 of the polypeptide of SEQ ID NO:1, and not "all" possible fragments as recited in the claims, the specification does not provide the requisite examples nor a representative number of different sequences that would allow the skilled artisan to produce fragment of the polynucleotide of SEQ ID NO:1 or 11 which retains it's ability to bind to OCIF.

With respect to claims 77 and 81, instant specification is non-enabling for polypeptide encoded by a nucleic acid sequence which hybridizes to the complement of SEQ ID NO:2, 12, 15, 18 or 19, at the conditions recited in the claims, said polypeptide retaining its OCIF binding property, because instant specification does disclose said polypeptide. Instant specification only discloses a polypeptide encoded by the polynucleotides of SEQ ID NO:2, 12, 15, 18 or 19, however, there is no teaching or guidance that a nucleic acid sequence which hybridizes to the complement of SEQ ID NO:2, 12, 15, 18 or 19 would encode a polypeptide that binds to OCIF. Furthermore, in the absence of a sufficient number of examples to enable the scope of the claims, the specification fails to provide the necessary guidance with assurance that one of ordinary skill in the art would obtain the products that possess the desired properties. With respect to claims 70-71, which recite "...a fragment, analog or variant of the OCIF binding protein...), the specification does not disclose any analogs or variants of the polypeptides of SEQ ID NO:1 or 11. In the specification (pages 15-30), Applicants describe the isolation, expression and sequence determination of cDNAs encoding human and mouse proteins which specifically bind to OCIF. However, there is no disclosure of any variants or analogs of the human or mouse polypeptide.

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There is no guidance in the specification as to how one of ordinary skill in the art would generate a polynucleotide or a polypeptide encoded thereby, other than that exemplified. The criteria set forth in Ex parte Forman (230 USPQ 546 (Bd. Pat. App. & Int. 1986), and reiterated in In re Wands (858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)), which include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art and (8) the breadth of the claims, is the basis for determining undue experimentation. In the instant case, the issue is the breadth of the claims in light of the predictability of the art as determined by the number of working examples, the skill level of the artisan and the guidance presented in the instant specification and the prior art of record. The instant claims are not limited to naturally-occurring compounds and the instant specification does not provide a description of a repeatable process of producing a fragment, an analog or a variant of the polypeptide of SEQ ID NO:1 or 11, which retains the ability to bind to OCIF. To practice the instant invention in a manner consistent with the breadth of the claims would not require just a repetition of the work that is described in the instant application but a substantial inventive contribution on the part of a practitioner which would involve the determination of those nucleotide of the disclosed naturally-occurring polynucleotide, which are required to encode a functional protein. It is this additional characterization of the disclosed polynucleotide that is required in order to obtain the functional and structural data needed to permit one to produce a polypeptide which meets both the structural and functional requirements of the instant claim that constitutes undue experimentation.

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Therefore Applicants have not presented enablement commensurate in scope with the claims 65-81.

8b. Claims 70-71 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The written description in this case only discloses the isolated protein comprising the amino acid sequence set forth in SEQ ID NO:1 or 11, and therefore the written description is not commensurate in scope with the claims drawn to variants or analogues of the protein with the amino acid sequence set forth of SEQ ID NO:1 or 11 as recited in claims 70-71.

Vas-Cath Inc. V. Mahurkar, 19 USPQ2d 1111, clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of *the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed*." (See page 1117). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116).

Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. 112 is severable from its enablement provision (see page 115).

Reiger et al (Glossary of Genetics and Cytogenetics, Classical and Molecular, 4th Ed., Springer-Verlag, Berlin, 1976) clearly define alleles as one of two or more alternative forms of a gene occupying the same locus on a particular chromosome..... and differing from other alleles of

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that locus at one or more mutational sites (page 17). Thus, the structure of naturally occurring allelic sequences are not defined. With the exception of SEQ ID NO: NO:1 and 11, the skilled artisan cannot envision the detailed structure of the encompassed polypeptide or the polynucleotide encoding such and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and a reference to a potential method of isolating it. The nucleic acid itself is required. See *Fiers v. Revel*, 25 USPQ 2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. V. Chugai Pharmaceutical Co. Lts.*, 18 USPQ2d 1016.

Applicants describe the isolation, expression and sequence determination of human and mouse proteins which specifically bind to OCIF. However, there is no disclosure of variants or analogs of the mouse or human protein comprising the amino acid sequence set foeth in SEQ ID NO:1 or 11.

Therefore only isolated polypeptide comprising the amino acid sequence of SEQ ID NO:1, or 11, but not the full breadth of the claims, meets the written description provision of 35 U.S.C. 112, first paragraph. As a result, it does not appear that the inventors were in possession of variants or analogues or fragments (with the exception of the fragment comprising amino acid residues 72-316 or 76-316 of the polypeptide of SEQ ID NO:1), of the polypeptides of SEQ ID NO:1 or 11.

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9a. Claims 64-76, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9b. Claims 64-79, 81-85-91 are vague and indefinite for reciting the acronym "OCIF....", because this acronym is not descriptive of the claimed protein, furthermore, more than one protein can be known by the same acronym. Reciting the full name of the protein in the first independent claim would obviate this rejection. Appropriate correction is required.

9b. Claim 83 is vague and indefinite for the recitation of "...said fragment is about 690 bp....", which renders the claim unclear because "about" indefinite, should the fragment be 600 bp, 500 bp, 1000 bp or something else?. The metes and bounds of the claim is not ascertainable.

Claim Rejections - 35 U.S.C. § 102

10 a. Claims 69, 72, 77-81, 85-91 are rejected under 35 U.S.C. 102(e) as being anticipated by Boyle (US Patent 5,843,678) for the same reason as canceled claims 1, 8-16, 21-31, 36, 39-41, 43-44, see office action mailed on 2/25/00 in Paper No.10, pages 12-14.

Boyle teaches an isolated murine nucleic acid molecule encoding a protein, that specifically binds to osteoprotegrin (OPG), an expression vector comprising said nucleic acid molecule and a method of making the encoded protein, (see column 3, lines 15-60, and Example 2). The protein disclosed by Boyle comprises 316 amino acid in length, has amino acid terminal, cytoplasmic domain, a transmembrane domain and a carboxyl terminal extracellular domain, and is involved in osteoclast differentiation, (see column 2, lines 20-55). The OPG binding protein disclosed by Boyle may be membrane-associated or may be in soluble form.

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The polynucleotide disclosed by Boyle shares 100% identity to instantly claimed polynucleotide sequence of SEQ ID NO: 2, and encodes a polypeptide which shares 100% identity to the polypeptide of SEQ ID NO:1 of the present invention. Therefore Boyle's reference clearly anticipates the instant claims 1, 8-16, 21-31, in the absence of any evidence to the contrary. Applicant's earliest effective priority for mouse polypeptide of SEQ ID NO:1 encoded by SEQ ID NO:2, is to document 151434/1997 filed on 06/09/97, which discloses mouse cDNA encoding OCIF binding molecule, and the full length mouse protein sequence. Therefore, claims drawn to mouse polynucleotide of SEQ ID NO:2 encoding the polypeptide of SEQ ID NO:1, and recombinant production of said polypeptide get the benefit of this priority date (i.e 06/09/97). Applicants argue that their earliest effective priority is to Japanese Patent Application 97808/1997 filed on 04/15/97, however, this document discloses only osteoclastogenesis inhibitory factor binding molecule (OBM) produced by mouse osteoblast stromal cell line ST2, and it discloses no sequences, therefore, claims drawn to isolated polypeptide of SEQ ID NO:1 encoded by SEQ ID NO:2, would not get the benefit of this priority date.

With respect to claims 77 and 81 the polynucleotide of Boyle would be expected to hybridize completely to the complement of instant claimed polynucleotide of SEQ ID NO:2, 15 or 18 under any hybridization conditions, and encode a polypeptide that binds to OCIF.

New Rejections:

10 b. Claims 69, 72-81, 85-91 are rejected under 35 U.S.C. 102(e) as being anticipated by Anderson et al (US Patent 6,017,729).

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Anderson et al teach an isolated human nucleic acid molecule encoding an isolated polypeptide that comprises 317 amino acid residues, (see column 2, lines 1-45). The protein disclosed by Anderson et al comprises 317 amino acid in length, has amino acid terminal, cytoplasmic domain, a transmembrane domain and a carboxyl terminal extracellular domain, is prepared in a soluble form or membrane bound form, (see column 2, lines 1-45).

The polynucleotide disclosed by Anderson et al shares 100% identity to instantly claimed polynucleotide sequence of SEQ ID NO: 12, and 19, and encodes a polypeptide which shares 100% identity to the polypeptide of SEQ ID NO: 11 and 17 of the present invention. See attached copies of the comparison of SEQ ID NO: 19 and SEQ ID NO: 17 claimed in the instant invention and the sequences of the reference (SEQUENCE COMPARISON 'A' and 'B', respectively). Therefore Anderson's reference clearly anticipates the instant claims 69, 72-81, 85-91, in the absence of any evidence to the contrary. Applicant's earliest effective priority for human polypeptide of SEQ ID NO: 11, and 17 encoded by SEQ ID NO: 12 and 19, respectively, is to document 224803/97 filed on 08/21/97, which discloses human cDNA and encoded protein and fragments thereof. Therefore, claims drawn to human polynucleotide of SEQ ID NO: 12 or 19 encoding the polypeptide of SEQ ID NO: 11 or 17, respectively, and recombinant production of said polypeptide get the benefit of this priority date (i.e 08/21/97).

With respect to claims 77 and 81 the polynucleotide disclosed in the Anderson et al reference would be expected to hybridize completely to the complement of instant claimed polynucleotide of SEQ ID NO: 12, or 19 under any hybridization conditions.

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10 c. Claims 82 and 83 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson et al (11/97).

Anderson et al reference discloses a nucleotide sequence that shares 100% homology to the nucleotide sequence of SEQ ID NO:6 and 9 of the instant application, (SEQUENCE COMPARISON 'C' and 'D'). The polynucleotide disclosed by Anderson et al meets the fragment limitation recited in claims 82 and 83, therefore, this reference anticipates claims 82 and 83.

Conclusion

11. No claim is allowable.

Advisory Information

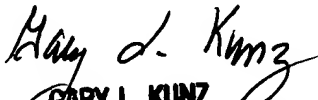
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fozia Hamud whose telephone number is (703) 308-8896. The examiner can normally be reached on Monday-Friday from 8:00AM to 4:30PM (Eastern time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached at (703) 308-4623.

Official papers filed by fax should be directed to (703) 308-4227. Faxed draft or informal communications with the examiner should be directed to (703) 308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Fozia Hamud
Patent Examiner
Art Unit 1647
November 02, 2000


GARY L. KUNZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1800

us-09-202-455-17.ra1

Query Match 100.0%; Score 1301; DB 3; Length 317;
Best Local Similarity 100.0%; Pred. No. 9.7e-139;
Matches 246; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 AOMDPNRISESGTICIRILRLHENADFDOTLLESQDTKLIPDSCKRIKQAFQAVQKEL 60
132 OHIVSGHIRLEKAMVDGSMWDLAKRSKLEOPFAHLTINATDIPSGSHKYSLSWYHDR 120
133 OHIVSGHIRLEKAMVDGSMWDLAKRSKLEOPFAHLTINATDIPSGSHKYSLSWYHDR 191
121 GWAKISNMTFSGKLIYNQDGFYLYANICFRHETSGDLATEYLQLMVYVTKSIRKIPS 180
192 GWAKISNMTFSGKLIYNQDGFYLYANICFRHETSGDLATEYLQLMVYVTKSIRKIPS 251
181 SHLMKGGSTKYWGSNSEFHYISINVGFFKLRSGEISIEVSNPSLDPDQATYFGAF 240
252 SHLMKGGSTKYWGSNSEFHYISINVGFFKLRSGEISIEVSNPSLDPDQATYFGAF 311
241 KYRDID 246
312 KYRDID 317

RESULT 2

US-08-996-139-11
Sequence 11, Application US/08996139
Patent No. 6017729

GENERAL INFORMATION:

APPLICANT: Anderson, Dirk M.
APPLICANT: Galibert, Laurent
APPLICANT: Maraskovsky, Eugene
TITLE OF INVENTION: Receptor Activator of NF-kappaB
NUMBER OF SEQUENCES: 19
CORRESPONDENCE ADDRESS:

ADDRESSEE: Immunex Corporation, Law Department
STREET: 51 University Street
CITY: Seattle
STATE: WA
COUNTRY: USA

ZIP: 98101
COUNTRY: USA

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: Apple Power Macintosh
OPERATING SYSTEM: Apple Operating System 7.5.5
SOFTWARE: Microsoft Word for Power Macintosh 6.0.1
CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/996,139
FILING DATE: 22 DECEMBER 1997

CLASSIFICATION:

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/996,139
FILING DATE: 14 OCTOBER 1997

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/813,509
FILING DATE: 07 MARCH 1997

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/772,330
FILING DATE: 23 DECEMBER 1996

ATTORNEY/AGENT INFORMATION:
NAME: Perkins, Patricia Anne
REGISTRATION NUMBER: 34,693
REFERENCE/DOCKET NUMBER: 2851-A

TELECOMMUNICATION INFORMATION:
TELEPHONE: (206)587-0430
TELEFAX: (206)233-0644

INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGTH: 294 amino acids
TYPE: amino acid

MOLECULE TYPE: protein

US-08-996-139-11

Query Match 85.8%; Score 1116; DB 3; Length 294;
Best Local Similarity 85.0%; Pred. No. 6.7e-118;
Matches 209; Conservative 14; Mismatches 21; Indels 2; Gaps 1;

1 AOMDPNRISESGTICIRILRLHENADFDOTLLESQDTKLIPDSCKRIKQAFQAVQKEL 60
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61 OHIVSGHIRLEKAMVDGSMWDLAKRSKLEOPFAHLTINATDIPSGSHKYSLSWYHDR 120
109 OHIVSGHIRLEKAMVDGSMWDLAKRSKLEOPFAHLTINATDIPSGSHKYSLSWYHDR 168
121 GWAKISNMTFSGKLIYNQDGFYLYANICFRHETSGDLATEYLQLMVYVTKSIRKIPS 180
169 GWAKISNMTFSGKLIYNQDGFYLYANICFRHETSGDLATEYLQLMVYVTKSIRKIPS 228
181 SHLMKGGSTKYWGSNSEFHYISINVGFFKLRSGEISIEVSNPSLDPDQATYFGAF 240
229 SHLMKGGSTKYWGSNSEFHYISINVGFFKLRSGEISIEVSNPSLDPDQATYFGAF 288
241 KYRDID 246
289 KYRDID 294

RESULT 3

US-08-842-842-7
Sequence 7, Application US/08842842
Patent No. 5843678

GENERAL INFORMATION:

APPLICANT: Boye, William J.
TITLE OF INVENTION: OSTEOCALCIN BINDING PROTEINS
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:

ADDRESSEE: Amgen Inc.
STREET: 1840 Dehavenland Drive
CITY: Thousand Oaks
STATE: California
COUNTRY: USA

ZIP: 91320-1789
COUNTRY: USA

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/842,842
FILING DATE:

CLASSIFICATION:

ATTORNEY/AGENT INFORMATION:
NAME: Winter, Robert B.
REFERENCE/DOCKET NUMBER: A-451

INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
LENGTH: 316 amino acids
TYPE: amino acid

MOLECULE TYPE: protein

US-08-842-842-7

Query Match 85.2%; Score 1109; DB 2; Length 316;
Best Local Similarity 84.6%; Pred. No. 4.7e-117;
Matches 208; Conservative 14; Mismatches 22; Indels 2; Gaps 1;

1 AOMDPNRISESGTICIRILRLHENADFDOTLLESQDTKLIPDSCKRIKQAFQAVQKEL 60
73 AOMDPNRISESGTICIRILRLHENADFDOTLLESQDTKLIPDSCKRIKQAFQAVQKEL 130
61 OHIVSGHIRLEKAMVDGSMWDLAKRSKLEOPFAHLTINATDIPSGSHKYSLSWYHDR 120

Thu Nov 2 16:03:24 2000

us-09-202-455-17.ra1

Page 1

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: November 1, 2000, 14:55:50 ; Search time 54.03 seconds
(without alignments)
76.314 Million cell updates/sec

Title: US-09-202-455-17

Perfect score: 1301

Sequence: 1 AQMDPNRISEDTGHCYRL.....LDPDODATYFGAFKVRDID 246

Scoring table:

BLOSUM62
Gapop=10.0, Gapext 0.5

Searched: 164575 seqs, 1676186 residues

Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database: Issued Patents AA: *
1: /cgn2_6/ptodata/1/1aa/5A.COMB.pep: *
2: /cgn2_6/ptodata/1/1aa/5B.COMB.pep: *
3: /cgn2_6/ptodata/1/1aa/6.COMB.pep: *
4: /cgn2_6/ptodata/1/1aa/PTUS.COMB.pep: *
5: /cgn2_6/ptodata/1/1aa/backfile1.pep: *

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed.
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	1301	100.0	317	US-08-996-139-13	Sequence 13, Appl
2	1116	85.8	294	US-08-996-139-11	Sequence 11, Appl
3	1109	85.2	316	US-08-842-842-7	Sequence 7, Appl
4	235.5	18.1	281	US-08-670-354-2	Sequence 2, Appl
5	235.5	18.1	281	US-08-584-031-1	Sequence 1, Appl
6	235.5	18.1	281	US-08-780-436-1	Sequence 1, Appl
7	235.5	18.1	281	US-08-670-354-6	Sequence 2, Appl
8	235	18.1	291	US-08-670-354-6	Sequence 6, Appl
9	235	18.1	291	US-08-670-354-6	Sequence 6, Appl
10	164.5	12.6	376	US-08-751-512-8	Sequence 8, Appl
11	160	12.3	279	PCT-US95-00362-5	Sequence 5, Appl
12	157	12.1	287	US-08-815-190A-16	Sequence 16, Appl
13	150	11.5	261	US-07-940-605A-2	Sequence 2, Appl
14	150	11.5	261	US-08-184-422-8	Sequence 8, Appl
15	150	11.5	261	US-08-360-923A-2	Sequence 2, Appl
16	150	11.5	261	US-08-446-922-4	Sequence 4, Appl
17	150	11.5	261	US-08-431-055-4	Sequence 4, Appl
18	150	11.5	261	US-08-690-096-2	Sequence 2, Appl
19	150	11.5	261	US-08-249-189-12	Sequence 12, Appl
20	150	11.5	261	US-08-484-624A-12	Sequence 12, Appl
21	150	11.5	261	US-08-477-733B-12	Sequence 12, Appl
22	150	11.5	261	US-08-763-995-2	Sequence 2, Appl
23	150	11.5	261	US-09-088-913A-12	Sequence 12, Appl
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36	149.5	11.5	281	2	US-08-810-453-2	Sequence 2, Appl
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ALIGNMENTS

RESULT 1
US-08-996-139-13
Sequence 13, Application US/08996139
Patent No. 6017729
GENERAL INFORMATION:
APPLICANT: Anderson, Dirk M.
APPLICANT: Galibert, Laurent
APPLICANT: Maraskovsky, Eugene
TITLE OF INVENTION: Receptor Activator of NF-kappaB
NUMBER OF SEQUENCES: 19
CORRESPONDENCE ADDRESS:
ADDRESSEE: Immunex Corporation, Law Department
STREET: 51 University Street
CITY: Seattle
STATE: WA
COUNTRY: USA
ZIP: 98101
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: Apple Power Macintosh
OPERATING SYSTEM: Apple Operating System 7.5.5
SOFTWARE: Microsoft Word for Power Macintosh 6.0.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/996,139
FILING DATE: 22 DECEMBER 1997
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: USN 60/064,671
FILING DATE: 14 OCTOBER 1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: USSN 08/813,509
FILING DATE: 07 MARCH 1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: USSN 08/772,330
FILING DATE: 23 DECEMBER 1996
ATTORNEY/AGENT INFORMATION:
NAME: Perkins, Patricia Anne
REGISTRATION NUMBER: 34,693
REFERENCE/DOCKET NUMBER: 2851-A
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206)587-0430
TELEFAX: (206)233-0644
INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
LENGTH: 317 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-996-139-13

Re over

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? ANTI-SENSE: NO
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? ORGANISM: Homo sapiens
? IMMEDIATE SOURCE:
? LIBRARY:
? CLONE: huRANKL (full length)
? FEATURE:
? NAME/KEY: CDS
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RESULT 2
US-08-996-139-10
Sequence 10, Application US/08996139

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RESULT 2
US-08-996-139-10
; Sequence 10, Application US/08996139

Patent No. 6017729

GENERAL INFORMATION:

APPLICANT: Anderson, Dirk M.

APPLICANT: Galibert, Laurent

APPLICANT: Marshkovsky, Eugene

TITLE OF INVENTION: Receptor Activator of NF-kappaB

NUMBER OF SEQUENCES: 19

CORRESPONDENCE ADDRESS:

ADDRESSEE: Immunex Corporation, Law Department

STREET: 51 University Street

CITY: Seattle

STATE: WA

COUNTRY: USA

ZIP: 98101

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: Apple Power Macintosh

OPERATING SYSTEM: Apple Operating System 7.5.5

SOFTWARE: Microsoft Word for Power Macintosh 6.0.1

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/996,139

FILING DATE: 22 DECEMBER 1997

CLASSIFICATION:

PRIOR APPLICATION DATA:

APPLICATION NUMBER: USSN 60/064,671

FILING DATE: 14 OCTOBER 1997

PRIOR APPLICATION DATA:

APPLICATION NUMBER: USSN 08/813,509

FILING DATE: 07 MARCH 1997

PRIOR APPLICATION DATA:

APPLICATION NUMBER: USSN 08/772,330

FILING DATE: 23 DECEMBER 1996

ATTORNEY/AGENT INFORMATION:

NAME: Perkins, Patricia Anne

REGISTRATION NUMBER: 34,693

REFERENCE/DOCKET NUMBER: 2851-A

TELECOMMUNICATION INFORMATION:

TELEPHONE: (206)587-0430

TELEFAX: (206)233-0644

INFORMATION FOR SEQ ID NO: 10:

SEQUENCE CHARACTERISTICS:

LENGTH: 1630 base pairs

TYPE: nucleic acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: cDNA

HYPOTHETICAL: NO

ANTI-SENSE: NO

ORIGINAL SOURCE:

ORGANISM: Mus musculus

IMMEDIATE SOURCE:

LIBRARY:

CLONE: RANKL

FEATURE:

NAME/KEY: CDS

LOCATION: 3..884

US-08-996-139-10

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GenCore version 4.5
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OM nucleic - nucleic search, using sw model

Run on: November 1, 2000, 14:55:35 ; Search time 141.28 Seconds
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Title: US-09-202-455-19

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Scoring table: IDENTITY NUC
Gapop 10.0 , Gapext 1.0

Searched: 262060 seqs, 75620727 residues

Total number of hits satisfying chosen parameters: 524120

Minimum DB seq length: 0
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Post-processing: Minimum Match 0%
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Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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2	522.2	70.5	1630	5	US-08-996-139-10 Sequence 10, Appl
3	520.6	70.3	2295	5	US-08-842-842-6 Sequence 6, Appl
4	69.4	9.4	1042	5	US-08-584-031-2 Sequence 2, Appl
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18	30.6	4.1	3126	5	US-08-928-329-2 Sequence 2, Appl
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21	30.2	4.1	43795	5	US-08-742-185-101 Sequence 10, Appl
22	30.0	4.0	19307	5	US-08-836-022A-101 Sequence 10, Appl
23	29.8	4.0	1440	4	US-08-743-637B-174 Sequence 174, App
24	29.8	4.0	1440	4	US-08-526-840B-174 Sequence 174, App
25	29.2	3.9	3732	5	US-09-212-971-7 Sequence 7, Appl
26	29	3.9	591	5	US-08-788-954-1 Sequence 1, Appl

27	29	3.9	1374	1	US-08-093-372-3 Sequence 3, Appl
28	28.8	3.9	279	1	US-08-186-222-3 Sequence 3, Appl
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31	28.8	3.9	1282	2	US-08-483-432-22 Sequence 22, Appl
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36	28.8	3.9	1519	6	PCT-US94-05275-9 Sequence 9, Appl
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43	28.6	3.9	2417	5	US-08-554-385-2 Sequence 2, Appl
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45	28.4	3.8	52	3	US-08-842-842-1 Sequence 1, Appl

ALIGNMENTS

RESULT 1
US-08-996-139-12
Sequence 12, Application US/08996139
Patent No. 6017729
GENERAL INFORMATION:
APPLICANT: Anderson, Dirk M.
APPLICANT: Galibert, Laurent
APPLICANT: Maraskovsky, Eugene
TITLE OF INVENTION: Receptor Activator of NF-kappaB
NUMBER OF SEQUENCES: 19
CORRESPONDENCE ADDRESS:
ADDRESSEE: Immunex Corporation, Law Department
STREET: 51 University Street
CITY: Seattle
STATE: WA
COUNTRY: USA
ZIP: 98101
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
OPERATING SYSTEM: Apple Power Macintosh
SOFTWARE: Microsoft Word for Power Macintosh 6.0.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/996,139
FILING DATE: 22 DECEMBER 1997
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: USSN 60/064,671
FILING DATE: 14 OCTOBER 1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: USSN 08/813,509
FILING DATE: 07 MARCH 1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: USSN 08/772,330
FILING DATE: 23 DECEMBER 1996
ATTORNEY/AGENT INFORMATION:
NAME: Perkins, Patricia Anne
REGISTRATION NUMBER: 34,693
REFERENCE/DOCKET NUMBER: 2851-A
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206)587-0430
TELEFAX: (206)233-0644
INFORMATION FOR SEQ ID NO: 12:
SEQUENCE CHARACTERISTICS:
LENGTH: 954 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: CDNA

Sequence CompuGen B

See 6vva

Biology: Shinozaki, S. 519, Ishibashi, M., Tochiya, S. 359-0512,
Japan (E-mail: ysn@net.cnet.or.jp, Tel: 81-285-52-2821,
Fax: 81-285-52-2824)

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Location/Qualifiers

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Comparison

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AF019048
VERSION
ACCESSION AF019048.1 GI:2612923
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SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE
AUTHORS Anderson,D.M., Maraskovsky,E., Billingsley,W.L., Dougall,W.C.,
Tometsko,M.E., Roux,E.R., Teepe,M.C., Dubose,R.F., Cosman,D. and
Galibert,L.
TITLE A homologue of the TNF receptor and its ligand enhance T-cell
growth and dendritic-cell function
JOURNAL Nature 390 (6566), 175-179 (1997)
MEDLINE 98032977
REFERENCE
AUTHORS Anderson,D.M., Billingsley,W., Dougall,W., Maraskovsky,E.,
Cosman,D., Dubose,R. and Galibert,L.
TITLE Direct Submision
JOURNAL Submitted (13-AUG-1997) Molecular Biology, Immunex Corp., 51
University St., Seattle, WA 98101, USA

FEATURES
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AF013170
VERSION
ACCESSION AF013170.1 GI:2411497
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SOURCE house mouse.
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE
AUTHORS Wong,B.R., Rho,J., Arron,J., Robinson,E., Orlinick,J., Chao,M.,
Kalachikov,S., Cayani,E., Bartlett,F.S. III, Franke,W.N., Lee,S.Y.
and Choi,Y.
TITLE TRANCE is a novel ligand of the tumor necrosis factor receptor
family that activates c-Jun N-terminal kinase in T cells
J Biol. Chem. 272 (40), 25190-25194 (1997)
MEDLINE 97460112
REFERENCE
AUTHORS Wong,B.R., Josten,R., Lee,S.Y., Sauter,B., Li,H.L., Steinman,R.M.
and Choi,Y.
TITLE TRANCE (tumor necrosis factor [TNF]-related activation-induced
cytokine), a new TNF family member predominantly expressed in T
cells, is a dendritic cell-specific survival factor
J. Exp. Med. 186 (12), 2075-2080 (1997)
MEDLINE 98060869
REFERENCE
AUTHORS 3 (bases 1 to 2237)
TITLE The TRAF family of signal transducers mediates NF-kappaB activation
by the TRANCE receptor
J. Biol. Chem. 273 (43), 28355-28359 (1998)
MEDLINE 98447691
REFERENCE
AUTHORS 5 (bases 1 to 2237)
TITLE Direct Submision
JOURNAL Submitted (09-JUL-1997) Howard Hughes Medical Institute, The
Rockefeller University, 1230 York Ave., New York, NY 10021, USA

FEATURES
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Location/Qualifiers

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ORIGIN

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Best Local Similarity 100.0%; Pred. No. 1.3;
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RESULT 6
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LOCUS Mus musculus receptor activator of nuclear factor kappa B ligand
DEFINITION (RANKL) mRNA, complete cds.
ACCESSION AF019048
VERSION AF019048.1 GI:2612923
KEYWORDS house mouse.
SOURCE Mus musculus.
ORGANISM Mus musculus.
REFERENCE 1 (bases 1 to 2225)
AUTHORS Anderson,D.M., Maraskovsky,E., Billingsley,W.L., Dougall,W.C.,
Tometsko,M.E., Roux,E.R., Teepe,M.C., Dubose,R.F., Cosman,D. and
Galibert,L.
TITLE A homologue of the TNF receptor and its ligand enhance T-cell
growth and dendritic-cell function
JOURNAL Nature 390 (6556), 175-179 (1997)
MEDLINE 9803297
REFERENCE 2 (bases 1 to 2225)
AUTHORS Anderson,D.M., Billingsley,W., Dougall,W., Maraskovsky,E.,
Cosman,D., Dubose,R. and Galibert,L.
TITLE Direct Submission
JOURNAL Submitted (13-AUG-1997) Molecular Biology, Immunex Corp., 51
University St., Seattle, WA 98101, USA
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ORIGIN

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LOCUS Mus musculus TNF-related ligand TRANCE mRNA, complete cds.
DEFINITION AF013170
ACCESSION AF013170
VERSION AF013170.1 GI:2411497
KEYWORDS house mouse.
SOURCE Mus musculus.
ORGANISM Mus musculus.
REFERENCE 1 (bases 1 to 2237)
AUTHORS Mong,B.R., Josten,R., Lee,S.Y., Sauter,B., Li,H.L., Steinman,R.M.
and Choi,Y.
TITLE TRANCE is a novel ligand of the tumor necrosis factor receptor
family that activates c-Jun N-terminal kinase in T cells
JOURNAL J. Biol. Chem. 272 (40), 25190-25194 (1997)
MEDLINE 9746012
REFERENCE 2 (bases 1 to 2237)
AUTHORS Mong,B.R., Josten,R., Lee,S.Y., Sauter,B., Li,H.L., Steinman,R.M.
and Choi,Y.
TITLE TRANCE (tumor necrosis factor [TNF]-related activation-induced
cytokine), a new TNF family member predominantly expressed in T
cells, is a dendritic cell-specific survival factor
JOURNAL J. Exp. Med. 186 (12), 2075-2080 (1997)
MEDLINE 9806089
REFERENCE 3 (bases 1 to 2237)
AUTHORS Fuller,K., Wong,B., Fox,S., Choi,Y. and Chambers,T.J.
TITLE TRANCE is necessary and sufficient for osteoclast-mediated
activation of bone resorption in osteoclasts
JOURNAL J. Exp. Med. 188 (5), 997-1001 (1998)
MEDLINE 98401035
REFERENCE 4 (bases 1 to 2237)
AUTHORS Mong,B.R., Josten,R., Lee,S.Y., Vologodskaya,M., Steinman,R.M. and
Choi,Y.
TITLE The TRAF family of signal transducers mediates NF-kappaB activation
by the TRANCE receptor
JOURNAL J. Biol. Chem. 273 (43), 28355-28359 (1998)
MEDLINE 98447691
REFERENCE 5 (bases 1 to 2237)
AUTHORS Wong,B.R., Rho,J., Arnon,J., Lee,S.Y., Robinson,E. and Choi,Y.
TITLE Direct Submission
JOURNAL Submitted (09-JUL-1997) Howard Hughes Medical Institute, The
Rockefeller University, 1230 York Ave., New York, NY 10021, USA
FEATURES
source
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